

BOMBARDIER AEROSPACE REGIONAL AIRCRAFT



## REGIONAL MARKET OUTLOOK

# FAA Aviation 2000

**Steve Ridolfi, President  
Bombardier Aerospace Regional Aircraft**





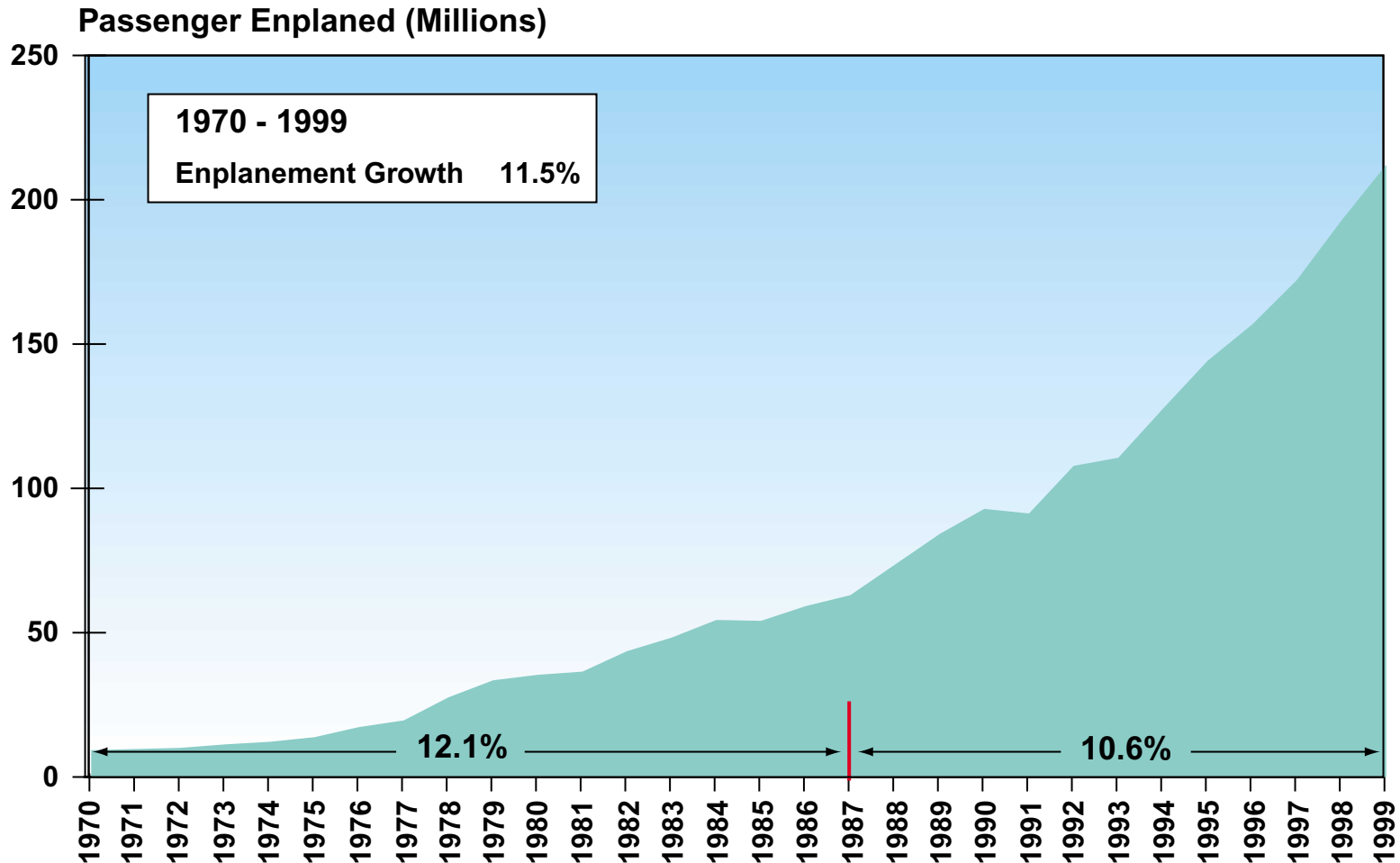
- **The regional market has experienced exceptional growth.**
- **Innovation and new technology has and will continue spur growth opportunities for the future**
- **Market demand for capacity and low costs will drive the requirement for larger regional aircraft**

**Bombardier Is Uniquely Positioned To Be The Dominant Force In The Regional Aircraft Market**

# World Regional Passenger Traffic

## 1970 - 1999

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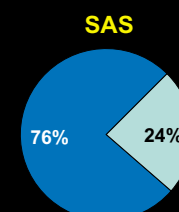
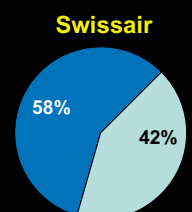
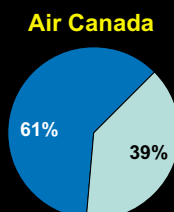
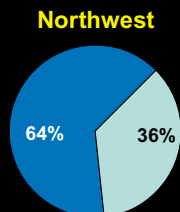
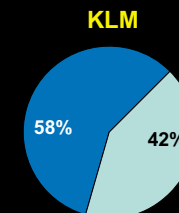
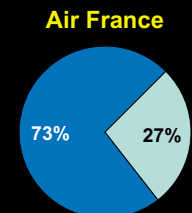
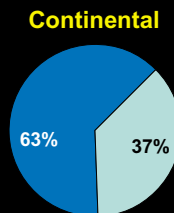
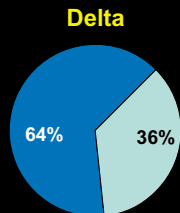
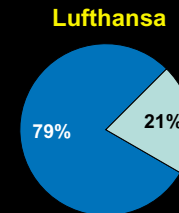
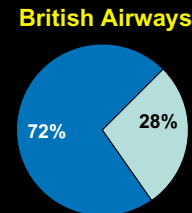
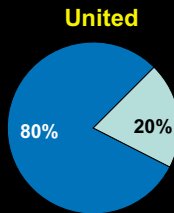
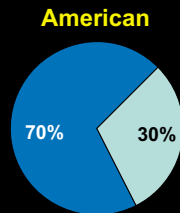


**Continued Growth In Regional Traffic**

# Regional Airlines

## An Integral Component of the Transportation System

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**Regional Aircraft Account For 30% Of The Commercial Aircraft Fleet**

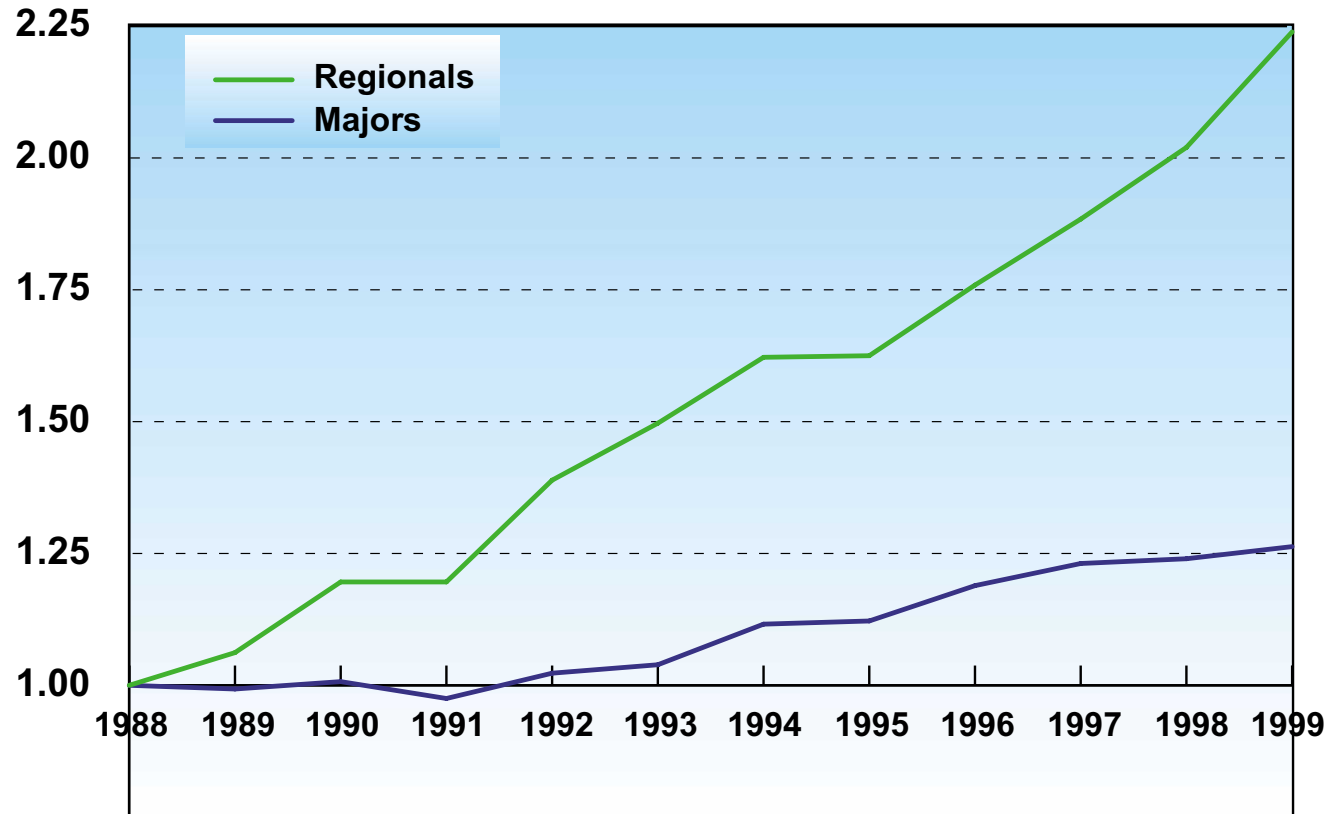
# U.S. Regional Airlines vs Majors

## 10-Year Enplanement Growth

**BOMBARDIER**  
AEROSPACE



Growth Index (1988 = 1.0)



**Regional Airlines: The High Growth Sector Of The  
U.S. Airline Industry**

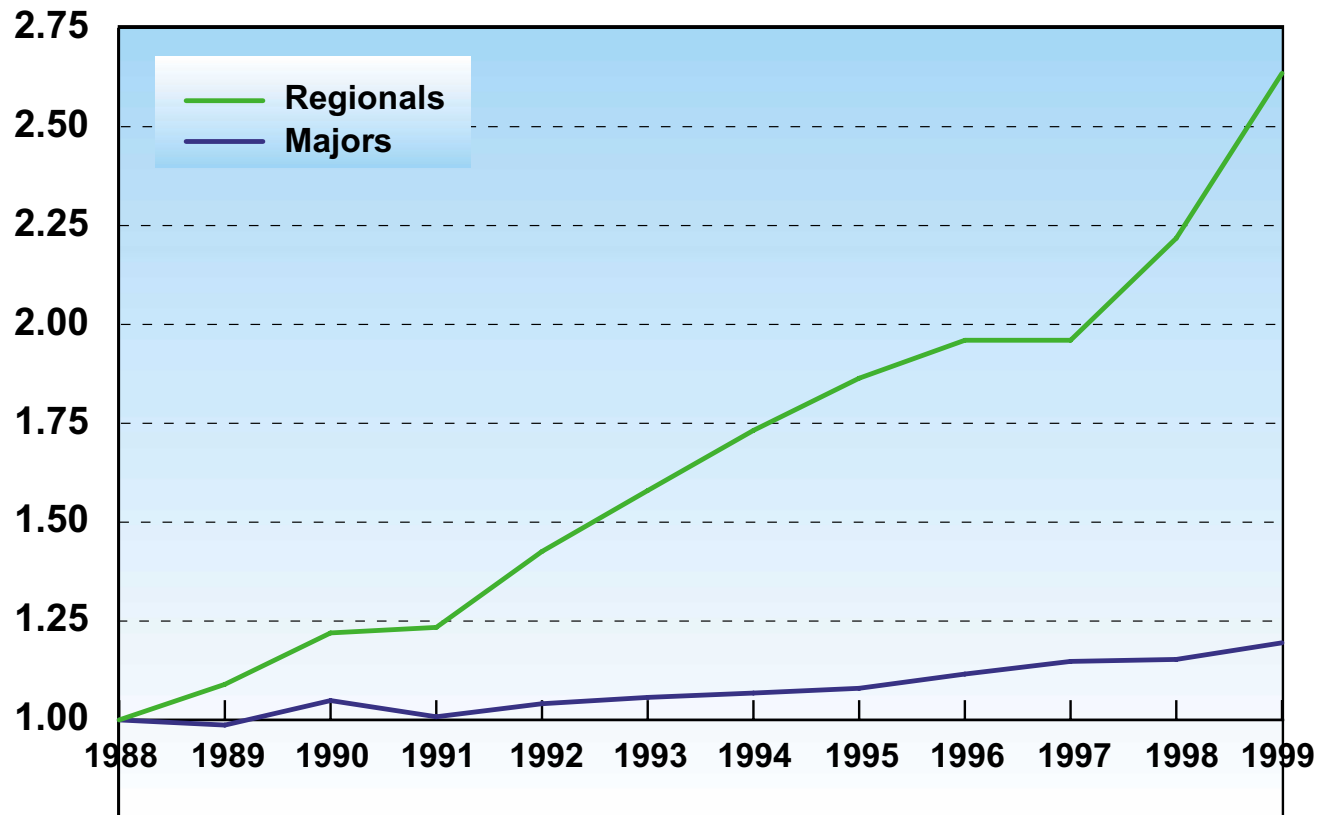
# U.S. Regional Airlines vs Majors

## 10-Year ASM Capacity Growth

**BOMBARDIER**  
AEROSPACE



Growth Index (1988 = 1.0)

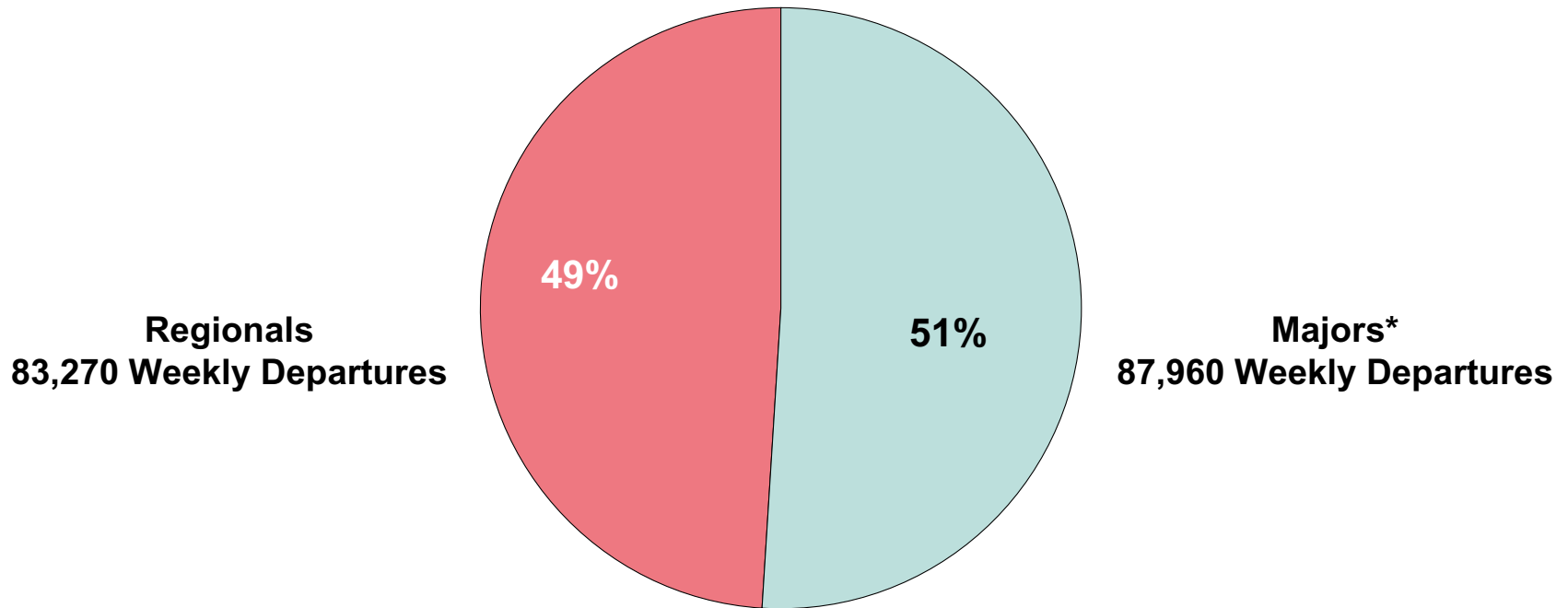


**Regional Airlines: Growing Into Larger Aircraft  
Flying Longer Sector Lengths**

# Regional Airlines are an Integral Part of the Air Transport Industry

## U.S. Weekly Domestic Departures - 1998

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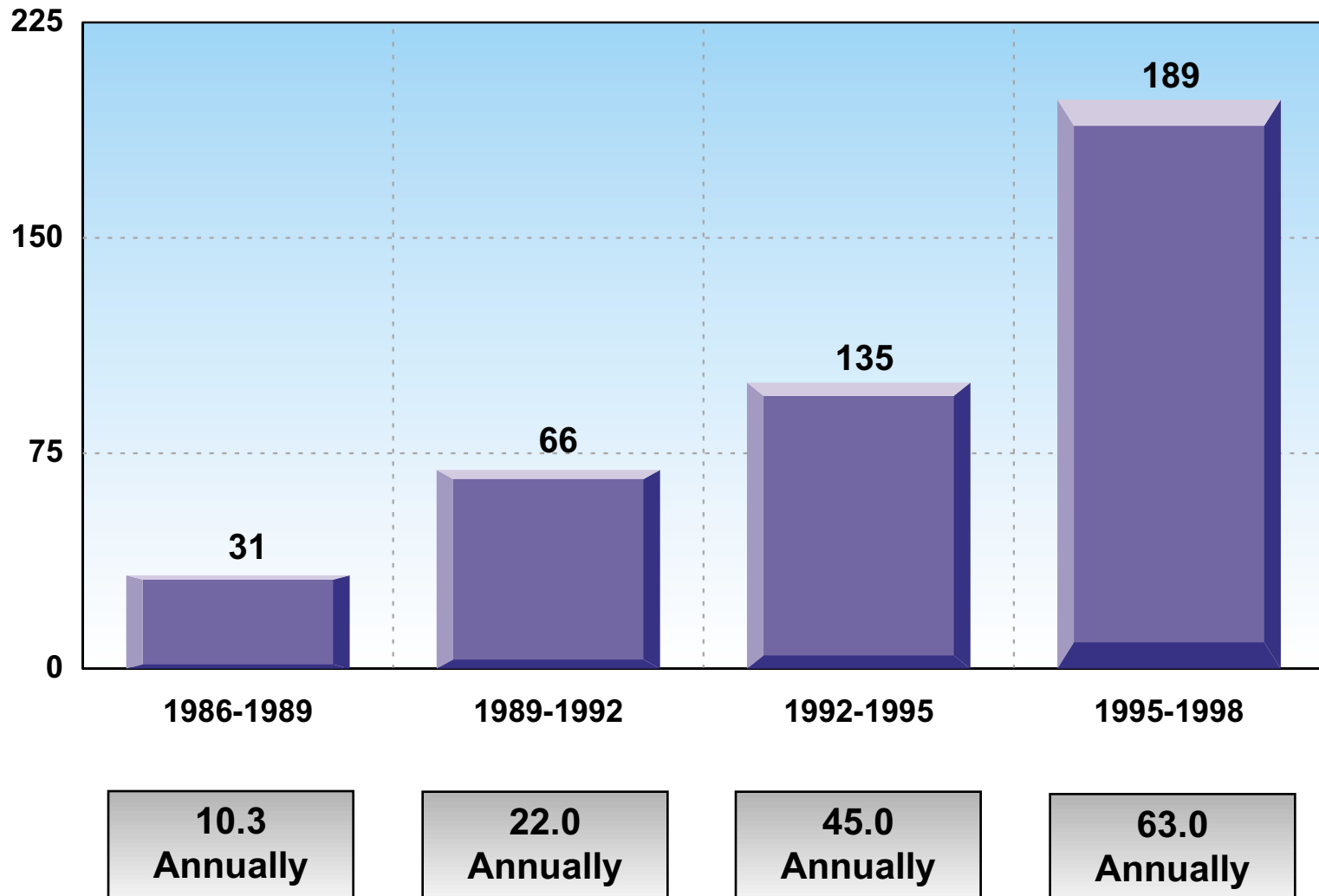


**Total Weekly Departures: 171,230**

\* Domestic Entity, includes U.S. - Canada  
Source: RAA, US DOT

# U.S. Major Regional Airline Route Transfers

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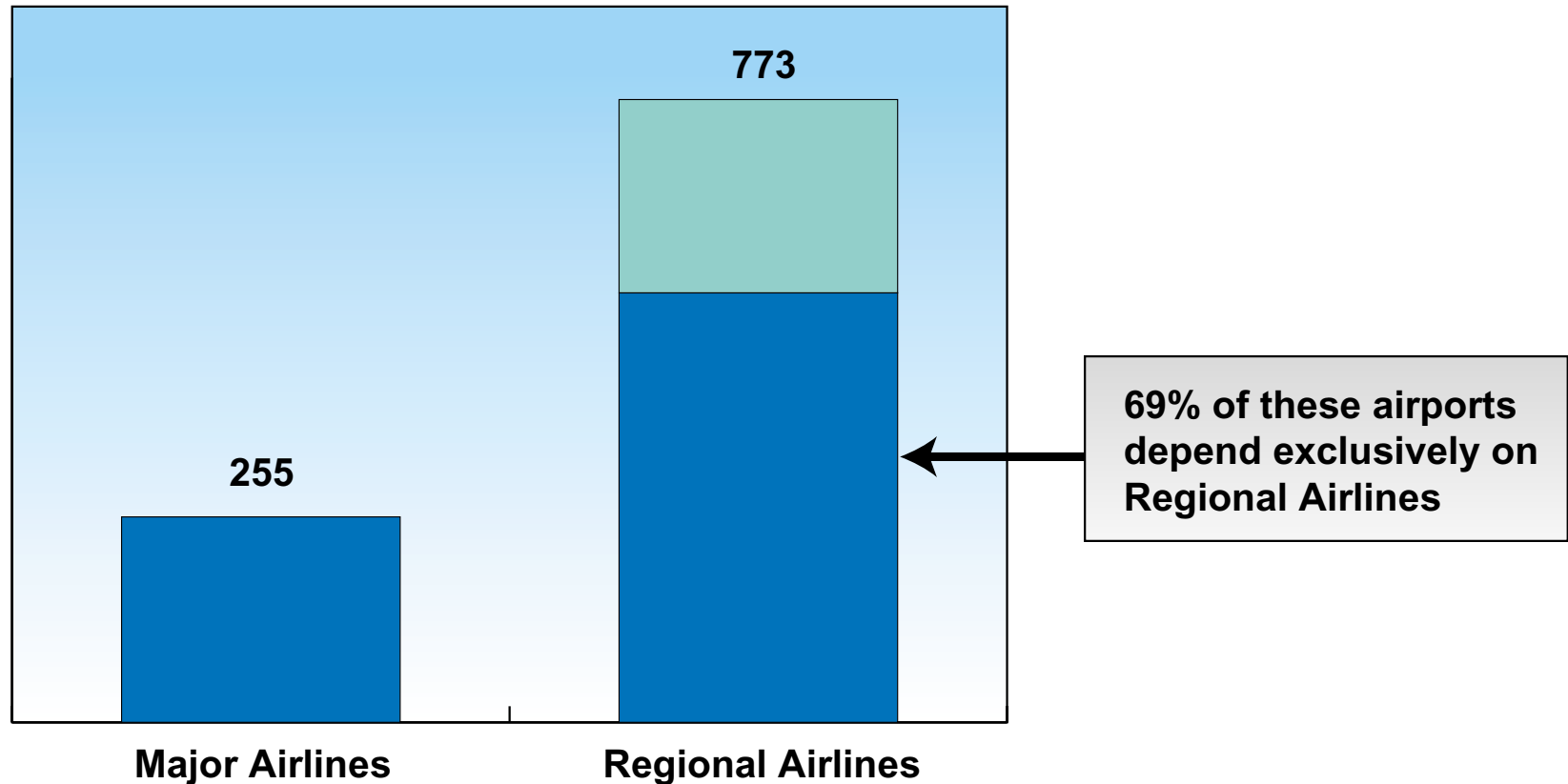


# Airline Service at North American Airports

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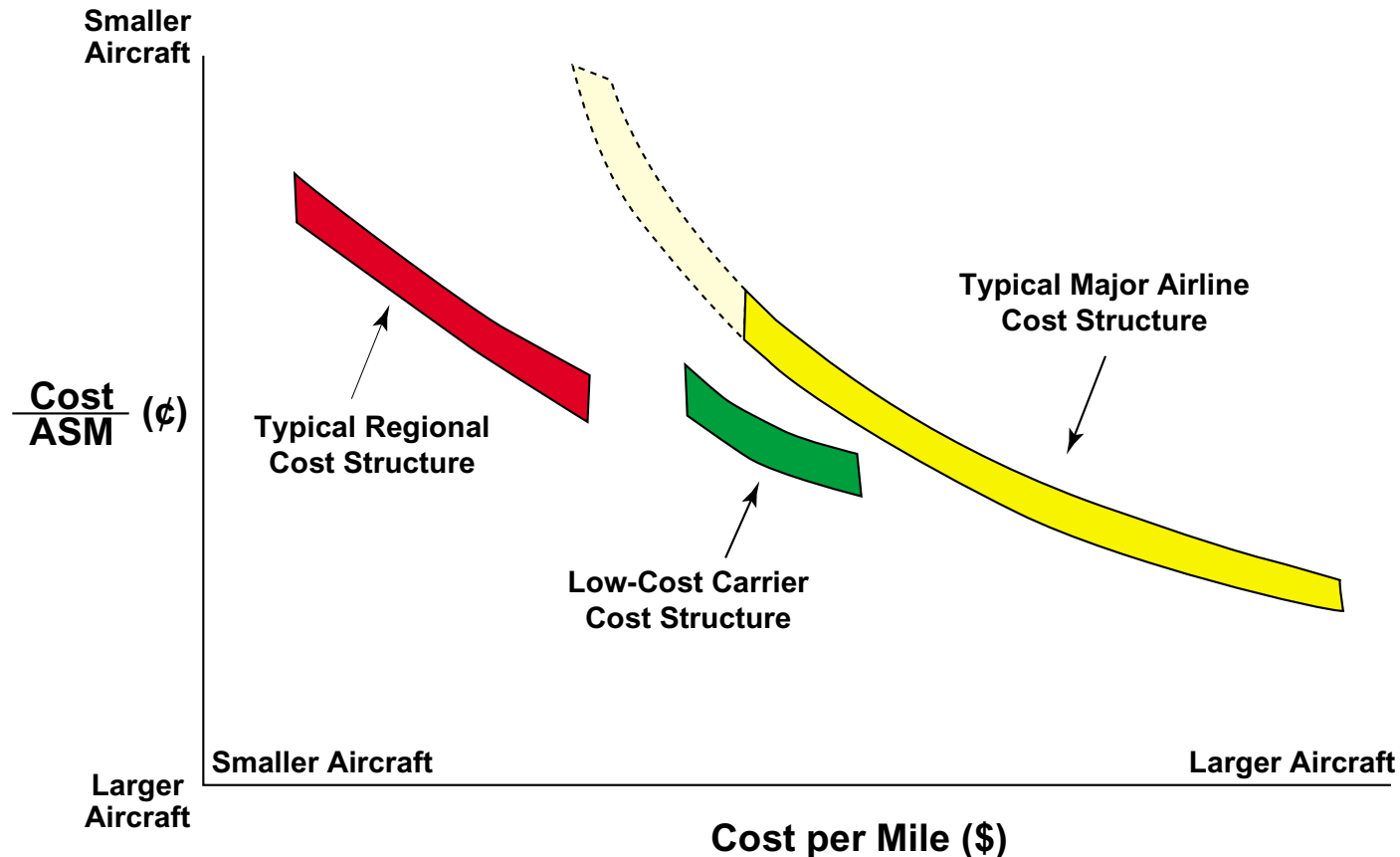
Airports Served in 1998



**Regional Airlines Are Vital To Our Airports**

# Typical North American Cost Structures

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**Successful Operation Of Small Units Of Capacity Is  
Dependent On Low Cost Structures**

# Comparative Statistics for U.S. Majors and Regionals

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	<u>Regionals</u>	<u>Majors*</u>
Cost per enplanement	\$80.32	\$118.88
Revenue per enplanement	\$93.89	\$132.69
Break-even load factor	50%	63%

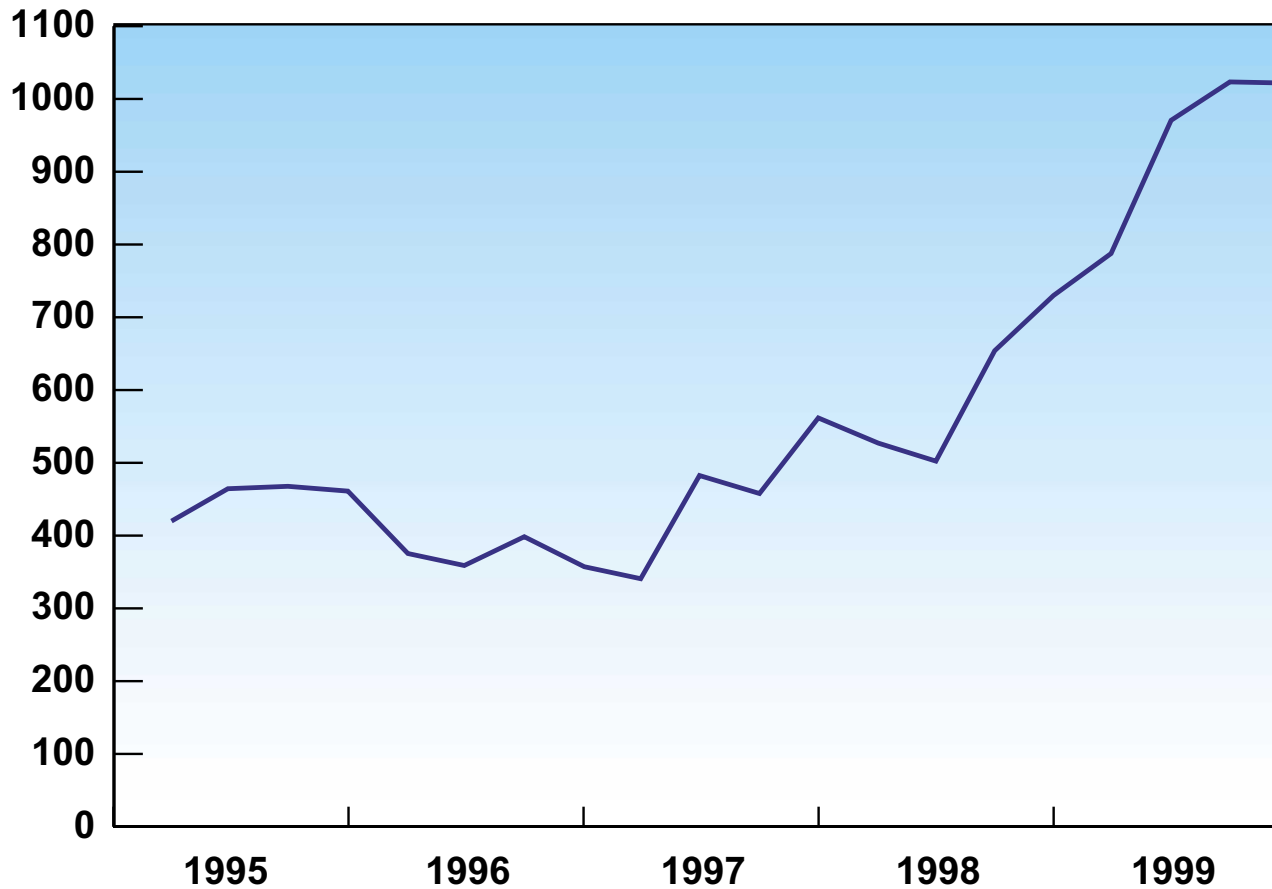
**Regional Airlines Are The Low-Cost Producers  
In The Airline Industry**

\* 1998 Domestic Division for Majors  
Source: US DOT

# Regional Aircraft Industry Backlogs

## 20-90 Seat Market

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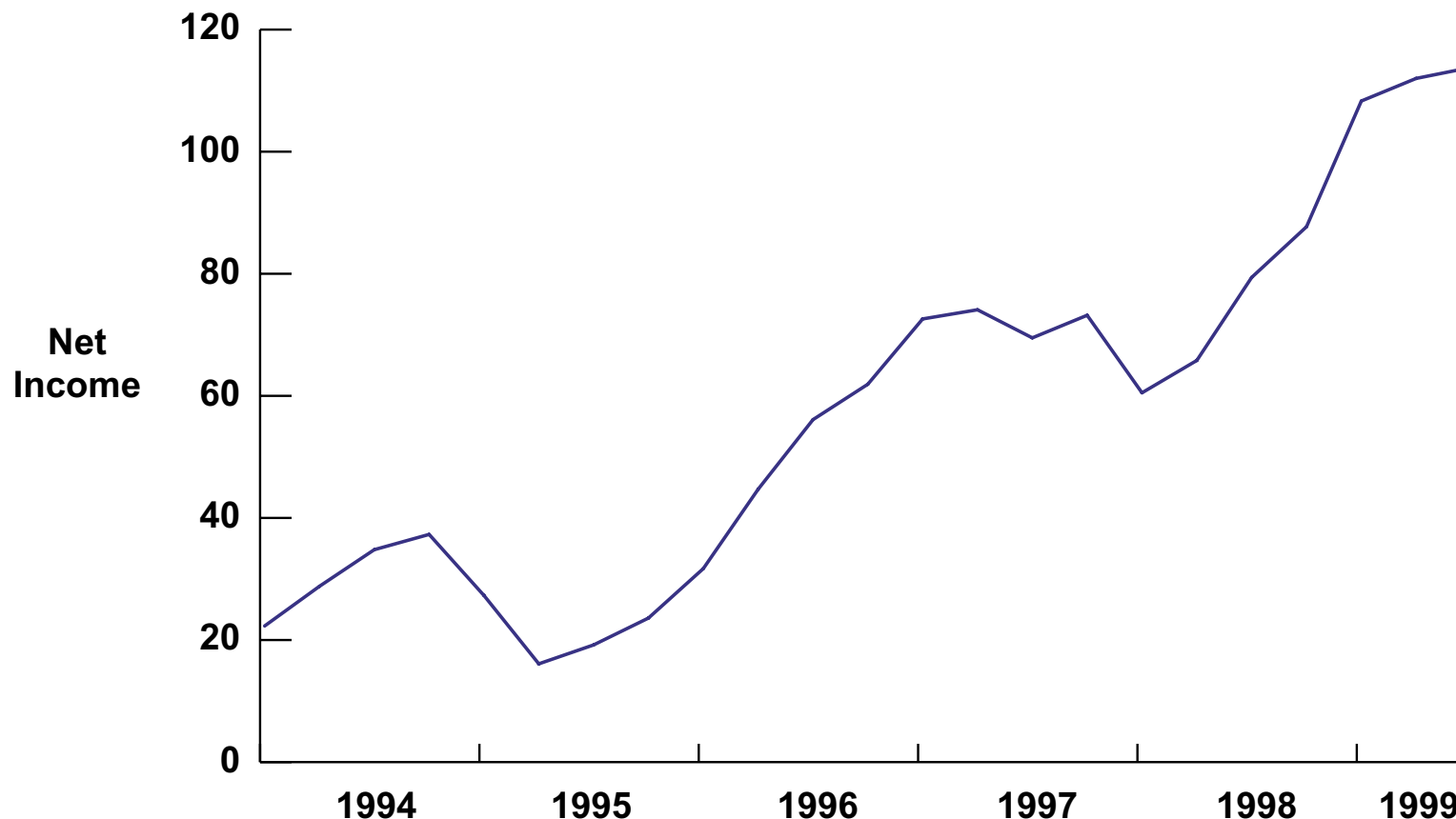
**The Regional Aircraft Industry Is Strong & Healthy**

# Top 12 U.S. Regional Airlines

## Net Income (millions)

### 4 Quarter Moving Average

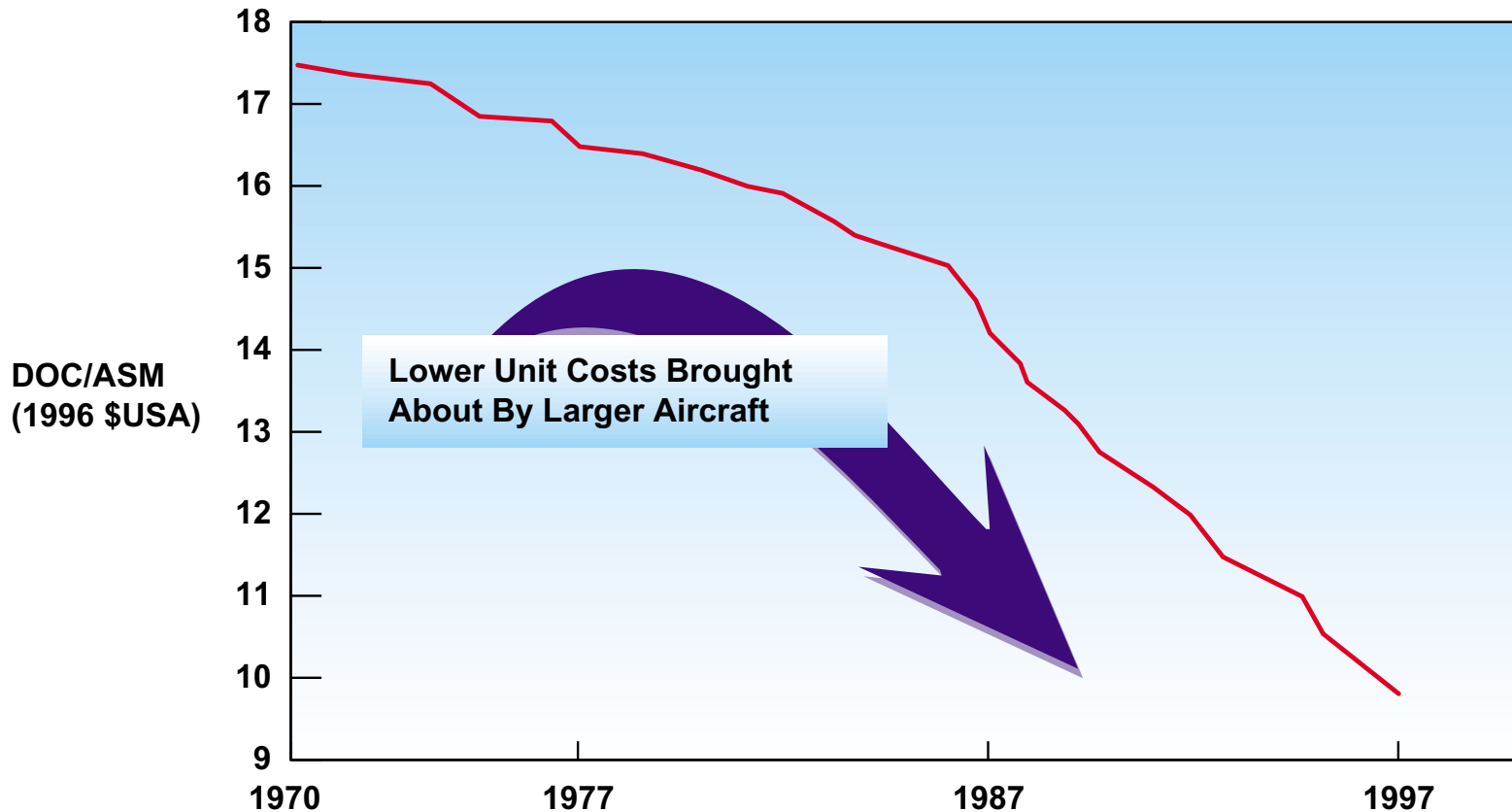
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**The Fortunes Of Regionals Continue To Rise**

# Regional Airline Operating Costs

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**Growth Stimulated As Savings Passed On To Consumer**

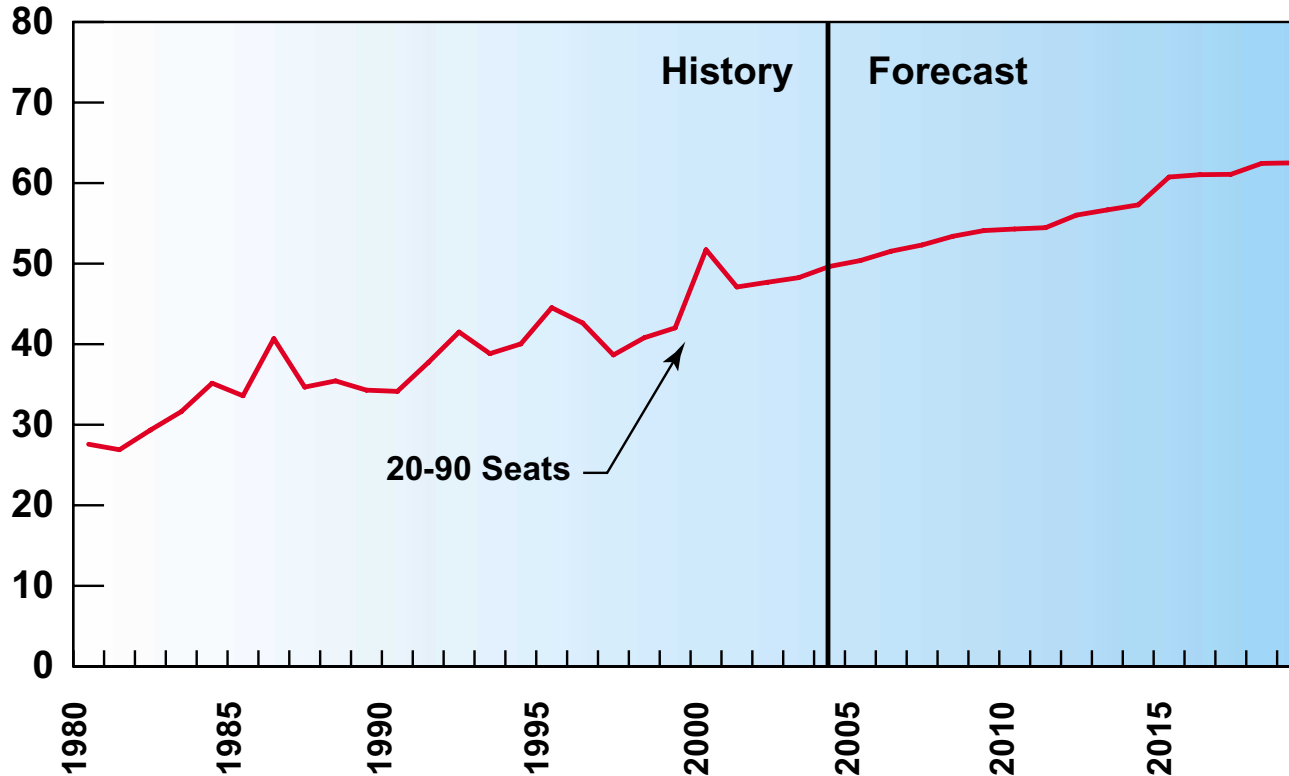
# Average Aircraft Size

## Worldwide Deliveries

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Average Seats



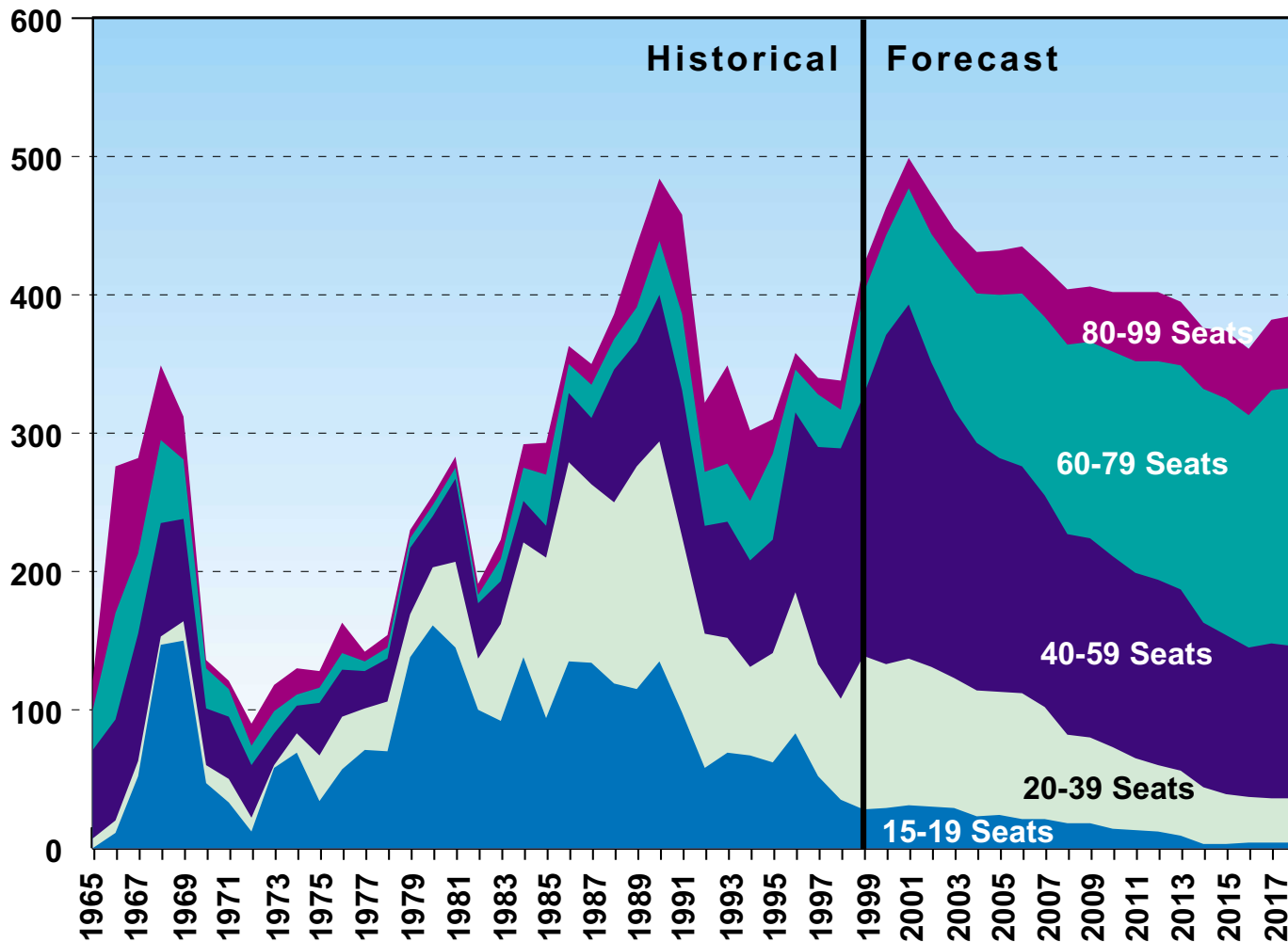
**Average Regional Aircraft Size Will Continue To  
Grow At One Seat Per Year**

# Worldwide Aircraft Delivery Forecast

All Markets, 15 - 99 Seats

1999 - 2018

**BOMBARDIER**  
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# World Regional Aircraft Deliveries

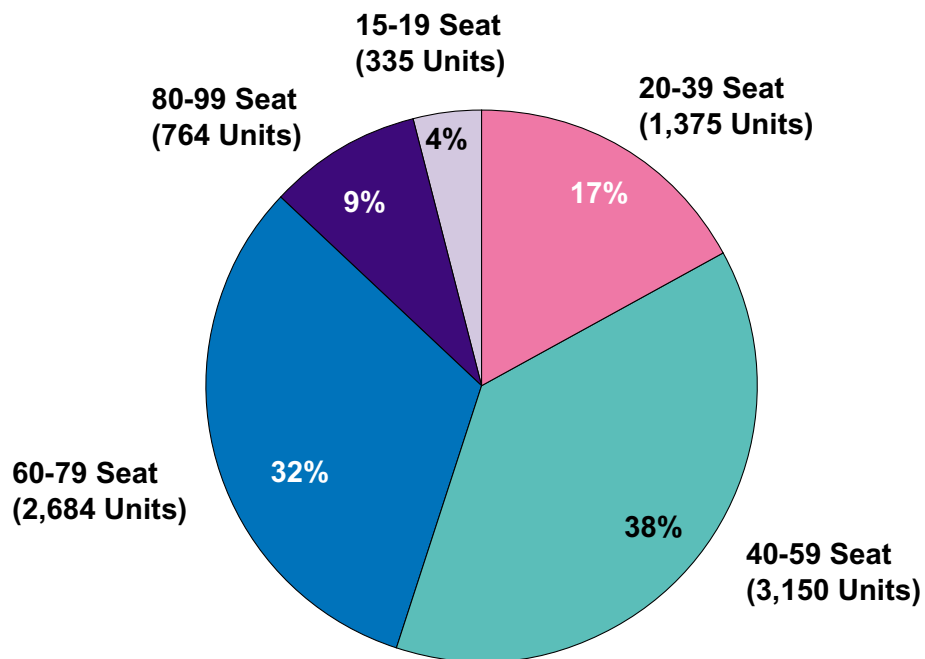
## All Markets, 15 - 99 Seats

1999 - 2018

**BOMBARDIER**  
AEROSPACE

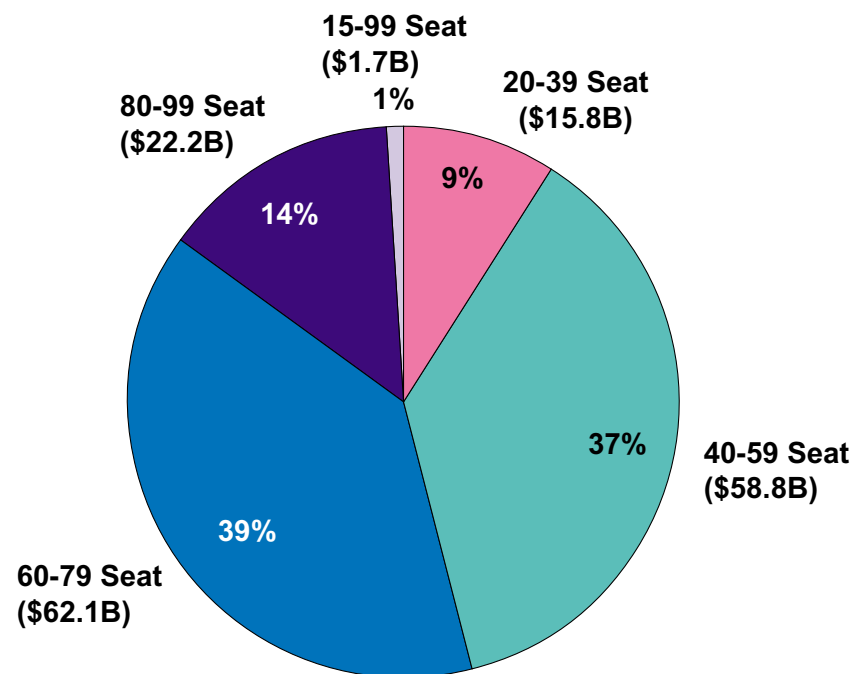


### Unit Deliveries



**Total Deliveries = 8,308 Units**

### Revenues



**Total Value = 160.6 Billion \$US**

# The Leader in the Regional Aircraft Market

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**Q Series**



**CRJ Series**

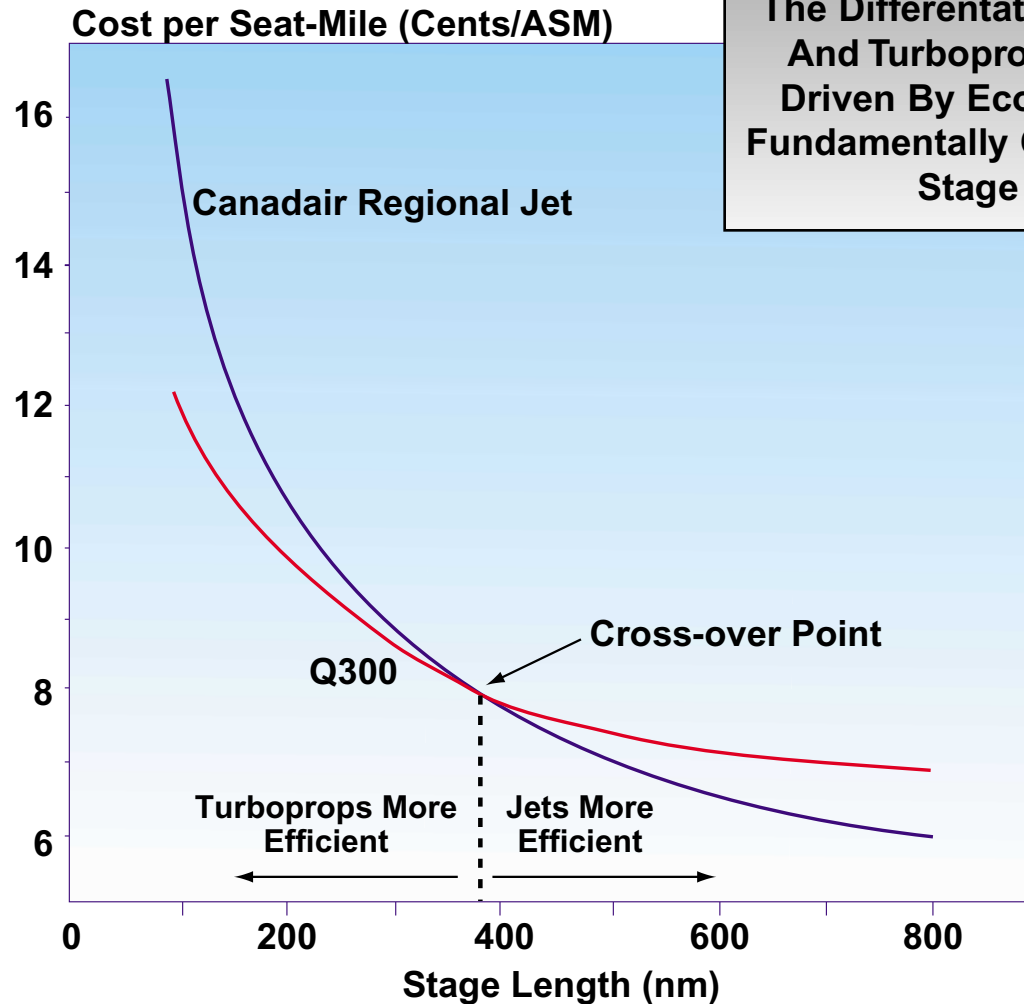


**1,867 Orders And Options For Our Current Product Families**

# Direct Operating Cost Comparison

## Q300 and Canadair Regional Jet

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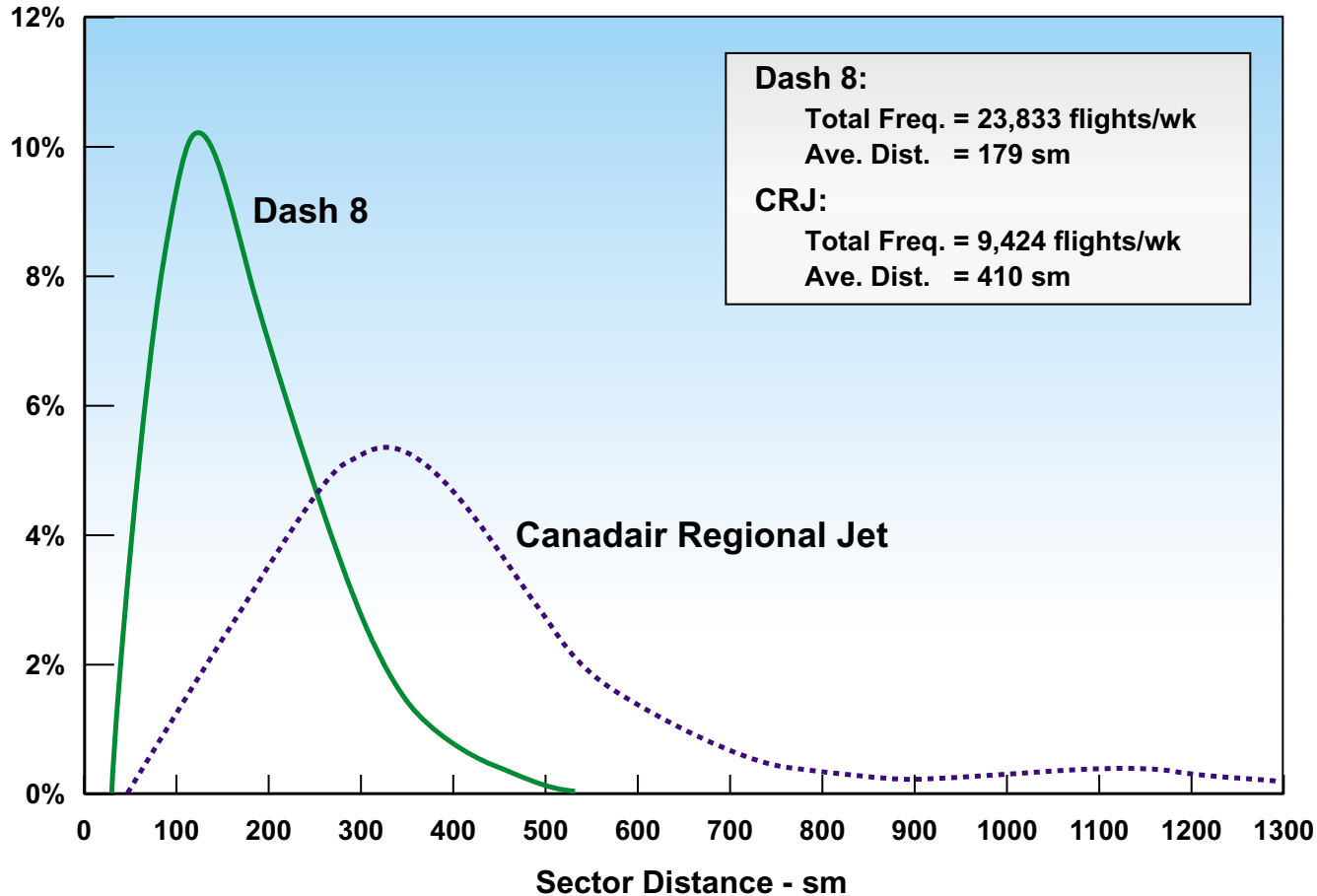
The Differentiation Between Jet And Turboprop Segments Is Driven By Economics And Is Fundamentally Characterized By Stage Length

# Sector Distances: Dash 8 vs CRJ

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AEROSPACE



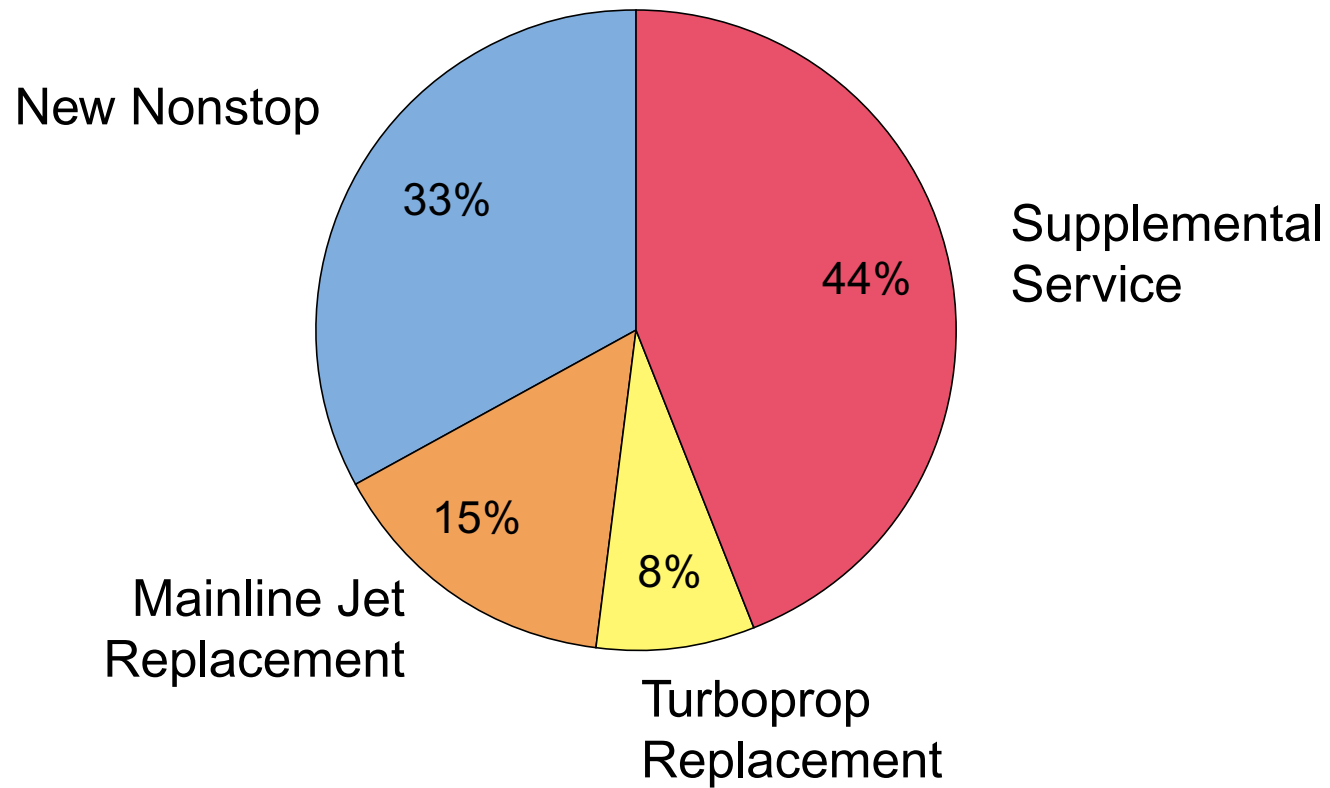
## Weekly Frequency



Source: OAGmax Airline Schedules May 1998

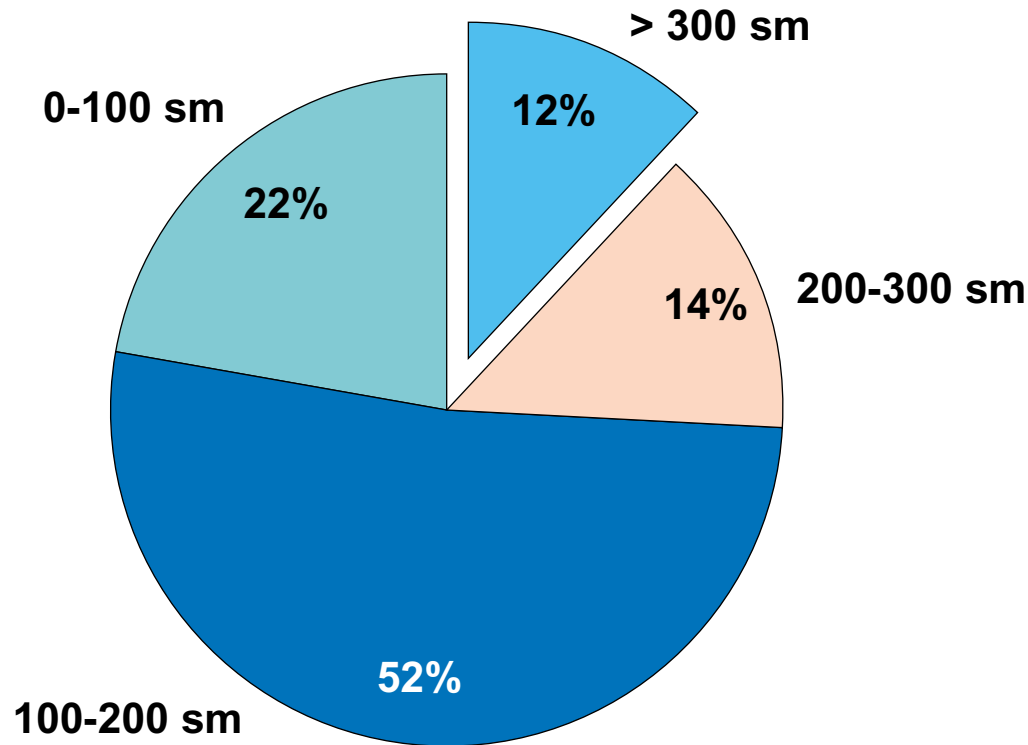
# Regional Jet Service in North America

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# Turboprops Are Used On Short-Haul Routes

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**There Are 6,500 Active Turboprops Worldwide;  
88% Operating On Stage Lengths Less Than 300 sm**

Source: BRAD

CEB113

# CRJ and Dash 8 Applications

## Lufthansa CityLine & Team Lufthansa

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**Q100/300**



**Team Lufthansa**

**Avg. Stage Length = 198 st. mi.**

**Canadair Regional Jet**

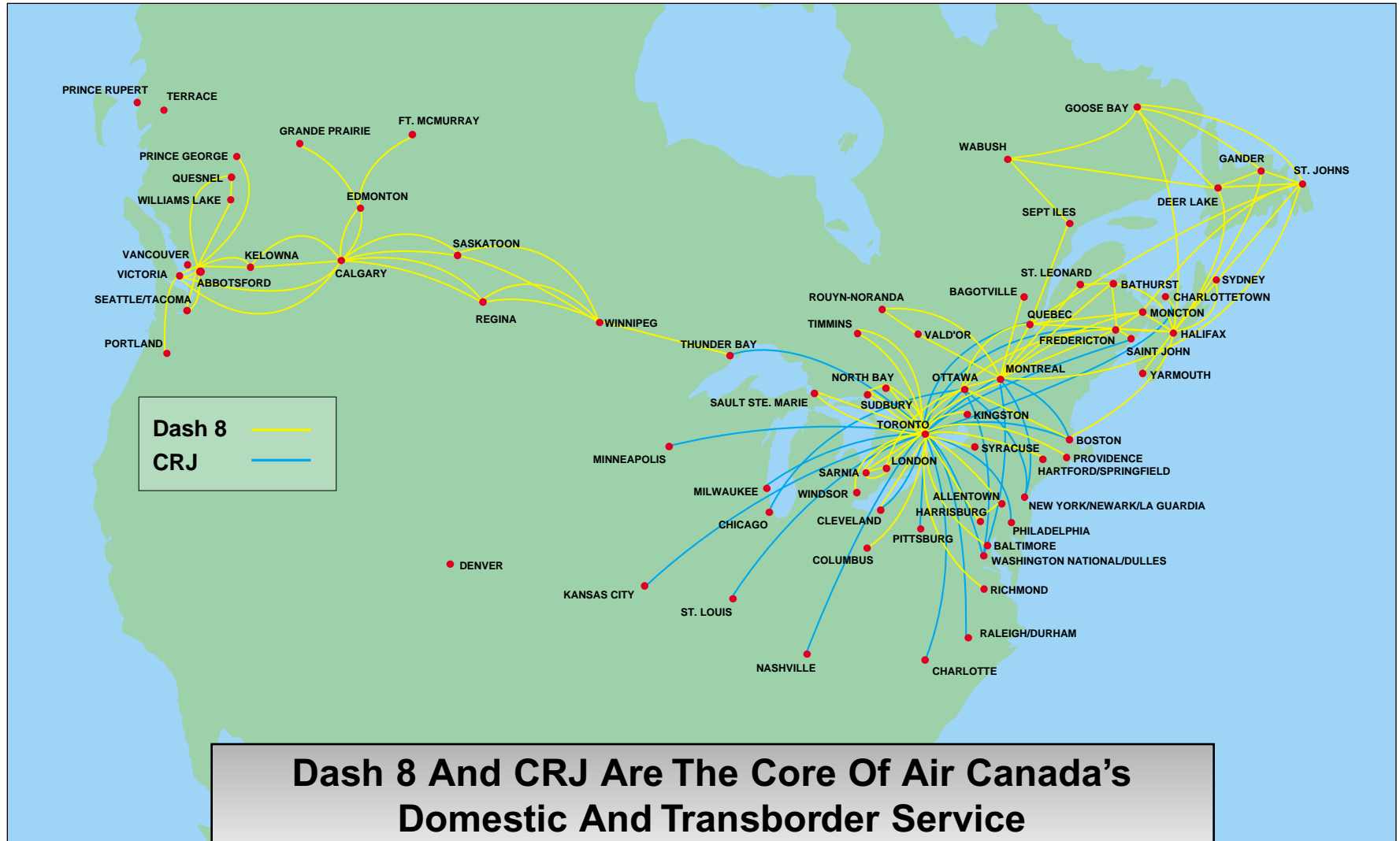


**Lufthansa CityLine**

**Avg. Stage Length = 459 st. mi.**

# Air Canada's Dash 8 and CRJ Route Structure

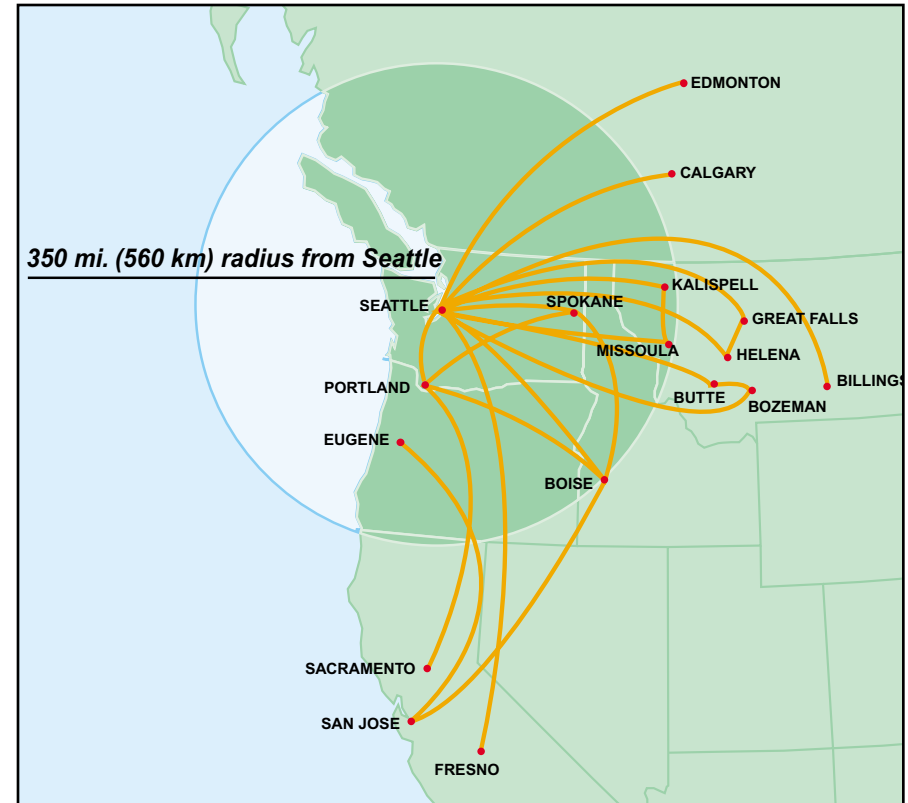
**BOMBARDIER**  
*AEROSPACE*







**Dash 8 Routes**



**CRJ Routes**

# CRJ and Dash 8 Applications

## Tyrolean

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**Average Stage Length = 367 km**

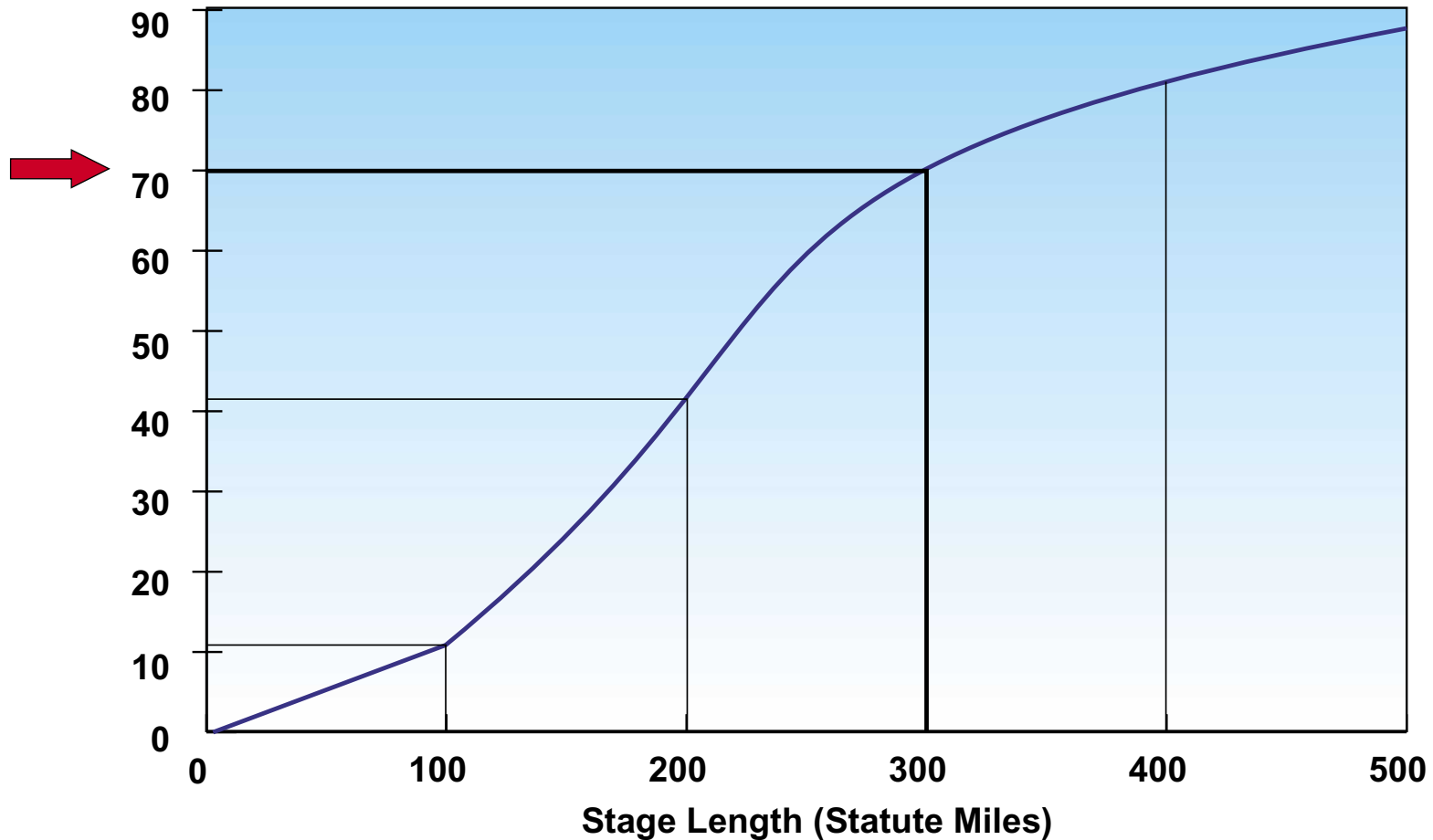


**Average Stage Length = 636 km**

# U.S. Regional Airlines

## Cumulative Departures by Stage Length

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**70% Of U.S. Regional Departures On Stage Lengths Less Than 300 Miles**

# Key Product Trends for Regional Airlines

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*AEROSPACE*



- **Growth aircraft requirement**
  - 50-70 seats in USA
  - 70-90 seats in Europe
- **Operational flexibility**
  - Outstanding economics for short-stage
  - Superior jet productivity for long haul
- **Product Commonality**
  - Significant economic advantage with common fleet
  - Range of aircraft sizes for different market needs

# CRJ Family

**BOMBARDIER**  
AEROSPACE



**ASA**



**Midway**



**Atlantic Coast**



**Atlantic Southeast**



**Comair**



**American Eagle**

**1,183 Orders And Options; 371 In Service**

# Canadair Regional Jet Series 700

## American Eagle

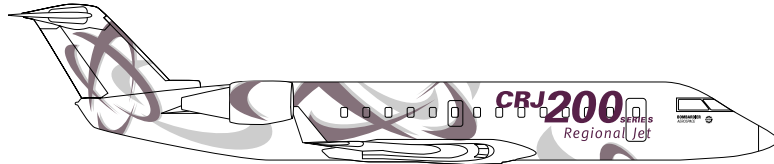
**BOMBARDIER**  
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**American Eagle Orders 25 Firm With 25 Options**

# Family Commonality is a Key Advantage

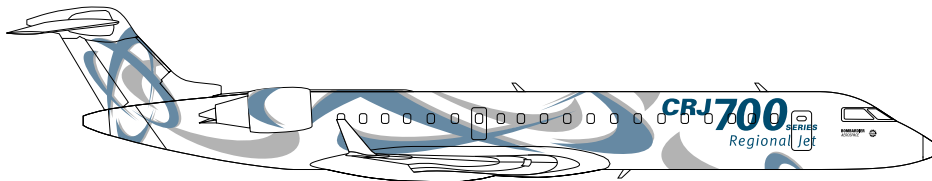
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**Entry in Service: 1992**

## CRJ100/200 Series

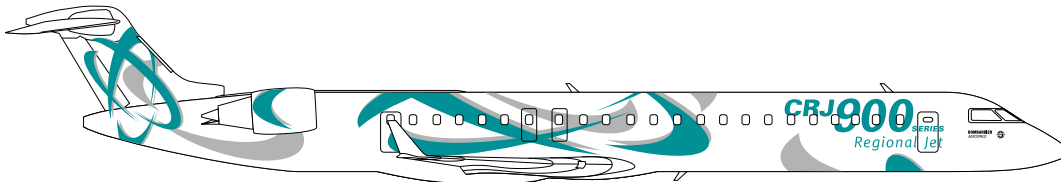
**50 Seats**



**Entry in Service: 2001**

## CRJ700 Series

**70 Seats**



**Entry in Service: 2002**

## CRJ900 Series

**90 Seats**



# Q Series Dash Family

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AEROSPACE



**U.S. Airways**



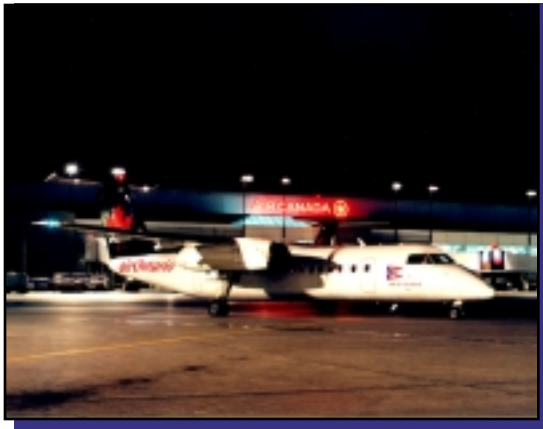
**Horizon Air**



**Tyrolean**



**Air Canada**



**SAS**



**Brymon**



**684 Orders And Options; 539 In Service**



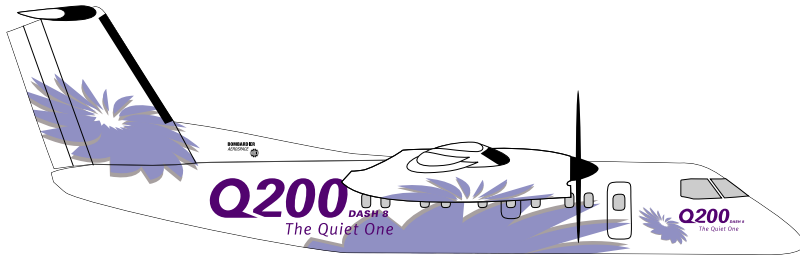
# Q Series 400 SAS

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*AEROSPACE*



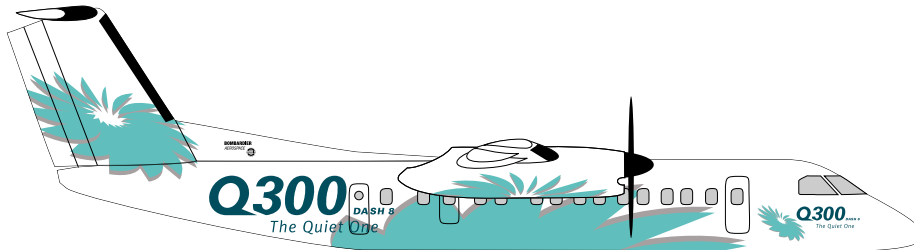
# Family Commonality is a Key Advantage

**BOMBARDIER**  
AEROSPACE



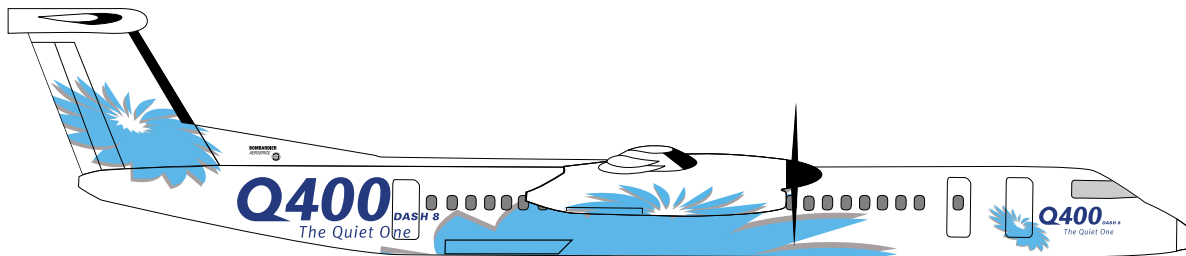
## Q200 Series

**37 Seats**



## Q300 Series

**50 Seats**



## Q400 Series

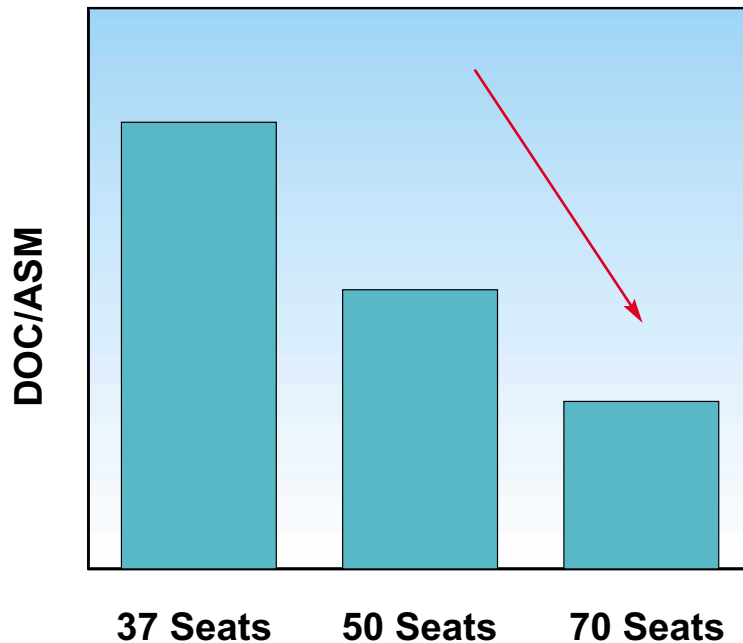
**70 Seats**

# Direct Operating Cost Impacts Due to Growth

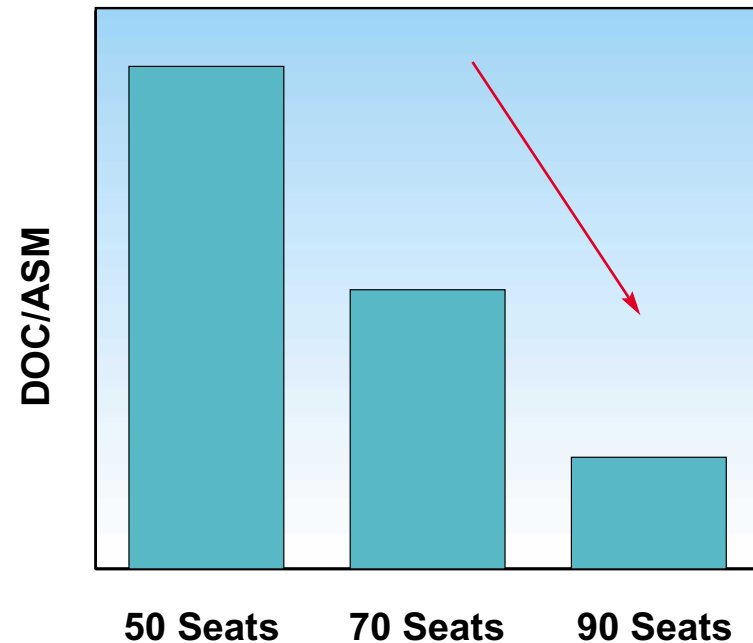
**BOMBARDIER**  
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## Turboprops



## Regional Jets

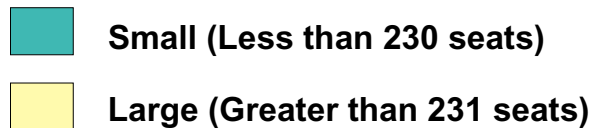
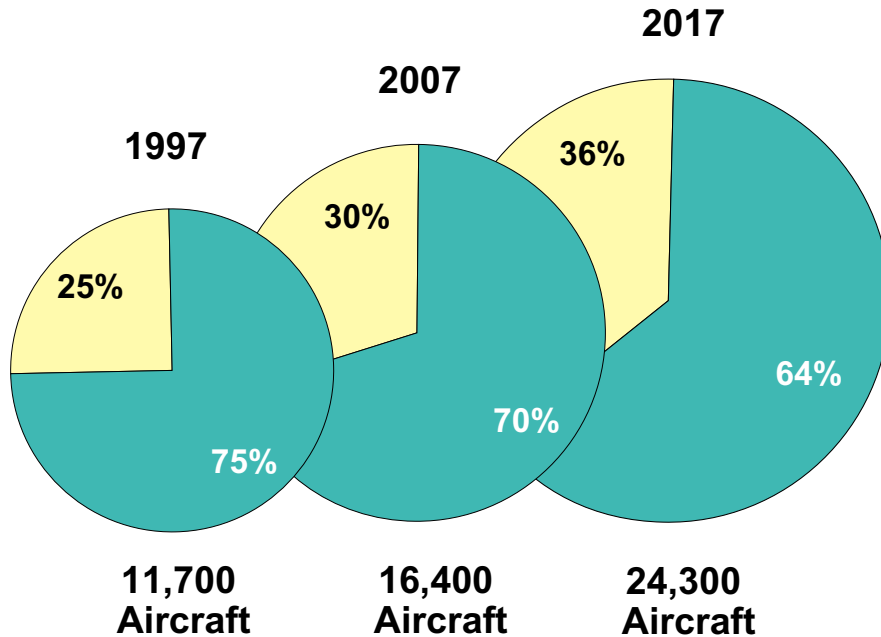


# Worldwide Aircraft Fleet

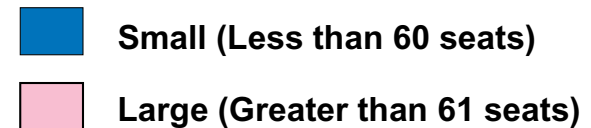
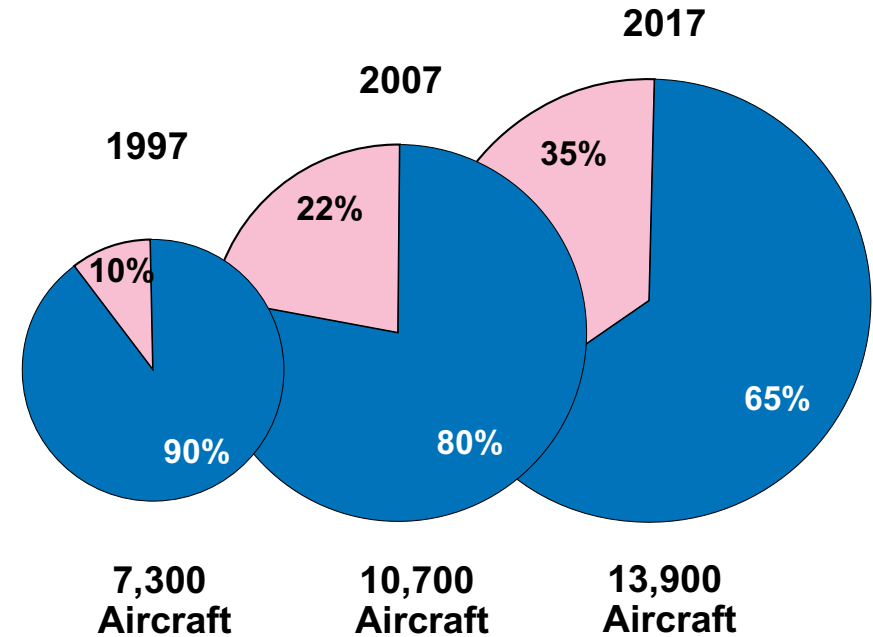
**BOMBARDIER**  
AEROSPACE



## Mainline Fleet



## Regional Fleet



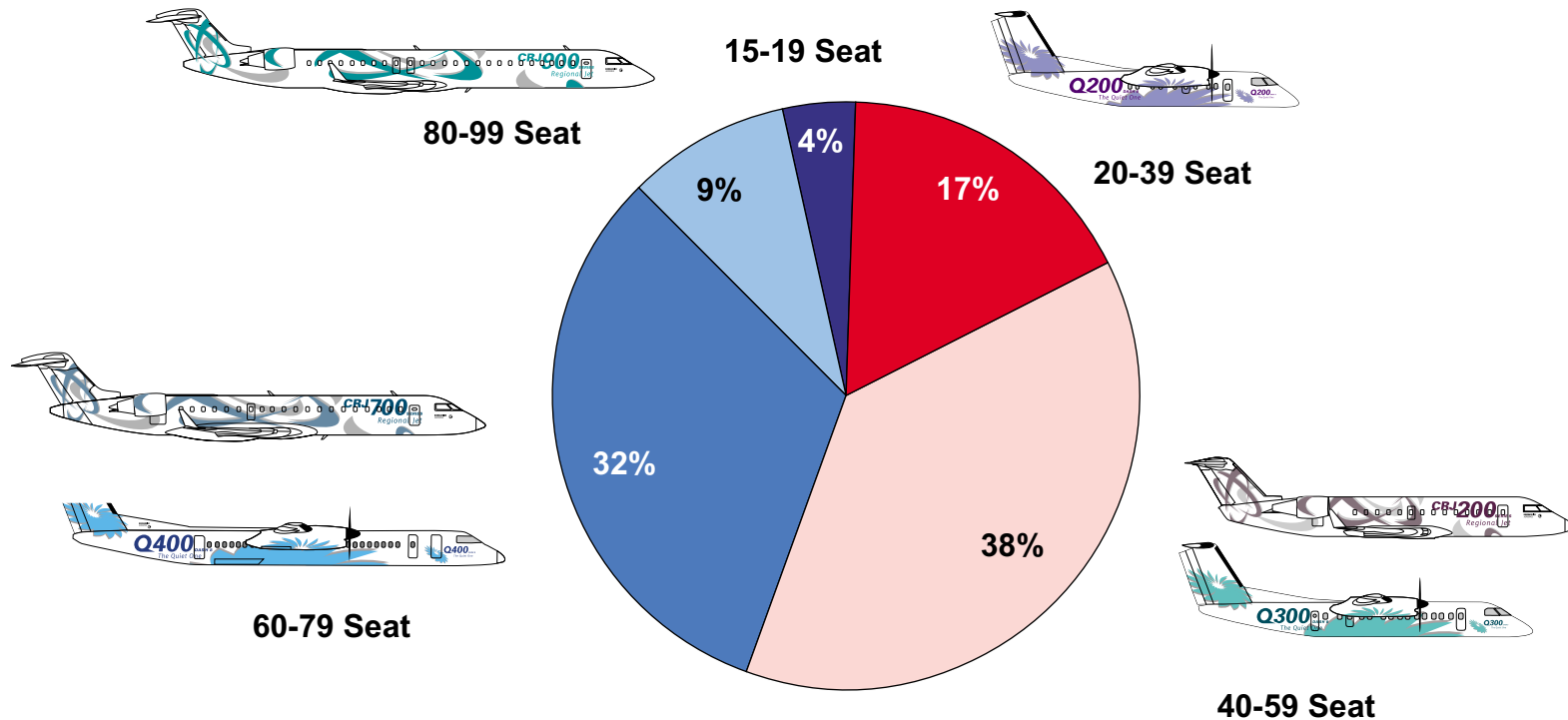
**To Keep Up With Mainline Growth;  
The Regional Fleet Must Grow In Both Size And Capacity**

# World Regional Aircraft Delivery Forecast

## All Markets, 20 - 99 Seats

1999 - 2018

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# The Leader in the Regional Aircraft Market

**BOMBARDIER**  
*AEROSPACE*



- **Market Leadership**
- **Broadest Family of Aircraft**
- **Innovation and New Technology**
- **Customer Service Excellence**

**We Make Aircraft. We Build Business**

# Trends, Issues and Challenges

**BOMBARDIER**  
AEROSPACE



**Bombardier's influence and strength is based on understanding industry needs and anticipating trends and issues**



**Q Series**



**CRJ**



**Global Express**



**Learjet**



**Challenger**



**Amphibian**